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MARINE SHORE FISHES FROM NEAR PUERTO LIMÓN,
CARIBBEAN COSTA RICA

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DAVID K. CALDWELL

Editor

MARINE SHORE FISHES FROM NEAR PUERTO LIMÓN, CARIBBEAN COSTA RICA

By DAVID K. CALDWELL¹

ABSTRACT: Sixty-three species of marine shore fishes, collected from a coralline tidepool habitat, are listed from Caribbean Costa Rica in the vicinity of Puerto Limón. Most of the specimens represent the first records of the species from Costa Rica, and five species (*Coryphopterus dicrus*, *C. glaucofraenum*, *Lythrypnus nesiotes*, *Enneanectes boehlkei* and *Parophidion schmidtii*) constitute major range extensions into the southwestern Caribbean from the north.

INTRODUCTION

Recently the Los Angeles County Museum (LACM) acquired a significant collection of marine shore fishes from two localities near Puerto Limón, Caribbean Costa Rica. Shore fishes from this region, and especially ones collected in a coralline tidepool habitat, are scarce in research collections and consequently some of the specimens represent major range extensions into the southwestern Caribbean from the north. Although known from other localities in the southwestern Caribbean, most of the species recorded are listed from Costa Rica for the first time.

This and an earlier report (Caldwell, Ogren and Giovannoli, 1959, and papers cited therein) summarize the majority of records of marine shore fishes from Caribbean Costa Rica. I wish here to correct two printer's errors which unfortunately appeared in the earlier paper after galley proof had been read: On page 23, the specimens from UF 5726 and UF 5848 belong to the species *Caranx latus*; on page 24, the specimens from UF 5784 belong to the species *Pomadasys crocro*.

Where possible, I have followed the phylogenetic arrangement of families used by Briggs (1958). Detailed references to the literature used in determining southern Caribbean marine shore fishes were included by Caldwell and Caldwell (*In press*). Therefore, only those references which stimulated particular comment on certain of the present material have been cited herein. The number of specimens follows the catalog number, then the range of lengths (unless otherwise stated, lengths are standard length), and the station number.

ECOLOGICAL NOTES

The collections were made with the use of rotenone by William A. Bussing and John R. Paxton. Mr. Bussing kindly made his field notes available

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to me for inclusion here. He described the general shoreline in the region of the two collections as being composed of eroded coral limestone which sometimes formed barrier reefs 100 to 200 yards from the main shore. He noted that tide pools one to five feet in depth were often formed by these reefs, and that the pools usually were isolated at low tide. Brain and finger coral were found living in the pools and it was noted that at the time of the collections there was a heavy growth of brown branched algae, and many green and red forms as well. Turtle grass also was usually present. The water temperature at the time of the collections was 27° C. The tide ranged from high to low. Mr. Bussing further stated that a great deal of rubbish and sewage entered the water between the towns of Piuta and Puerto Limón. Both localities are in Limón Province, Caribbean Costa Rica. Pertinent specific data not common to the two collections were recorded as follows:

Station CR 126.

May 22, 1962. Two kilometers north of Puerto Limón at the town of Piuta. The bottom consisted primarily of dead coral and coral sand. Collections were made in enclosed tide pools up to 75 feet from shore in water depths up to five feet.

Station CR 127.

May 23, 1962. One and one-half kilometers north of Puerto Limón at the town of Piuta. The bottom consisted primarily of sand and mud. Collections were made about 100 yards from shore in water depths up to ten feet.

ANNOTATED LIST OF SPECIES

MORINGUIDAE

Moringua sp.

LACM 2519, 113, about 55 to about 330 mm. total length, CR 126; LACM 2523, 17, about 55 to about 305 mm. total length, CR 127.

MURAENIDAE

Echidna catenata (Bloch)

LACM 2510, 5, about 195 to about 400 mm. total length, CR 126.

Enchelycore nigricans (Bonnaterre)

LACM 2517, 24, about 195 to about 405 mm. total length, CR 126.

Gymnothorax albimentis (Evermann and Marsh)

LACM 2491, 1, about 68 mm. total length, CR 126; LACM 2529, 2, about 60 and about 68 mm. total length, CR 127.

Gymnothorax funebris Ranzani

LACM 2516, 5, about 127 to about 553 mm. total length, CR 126; LACM 2526, 2, about 213 and about 475 mm. total length, CR 127.

Gymnothorax moringa (Cuvier)

LACM 2481, 10, about 117 to about 217 mm. total length, CR 126; LACM 2527, 8, about 64 to about 305 mm. total length, CR 127.

Gymnothorax vicinus (Castelnau)

LACM 2518, 8, about 195 to about 224 mm. total length, CR 126.

Gymnothorax virescens Poey

LACM 2496, 5, about 158 to about 177 mm. total length, CR 126; LACM 2524, 21, about 60 to about 305 mm. total length, CR 127.

Muraena miliaris (Kaup)

LACM 2525, 2, about 218 and about 231 mm. total length, CR 127.

ECHELIDAE

Chilorhinus svensoni Lütken

LACM 2503, 6, 45.6 to 75.3 mm., CR 126; LACM 2530, 2, 50.0 and 60.0 mm., CR 127.

OPHICHTHIDAE

Ahlia egmontis (Jordan)

LACM 2487, 1, about 345 mm. total length, CR 126.

Myrophis punctatus Lütken

LACM 2475, 4, about 65 to about 70 mm. total length, CR 126; LACM 2528, 1, about 55 mm. total length, CR 127.

BELONIDAE

Strongylura marina (Walbaum)

LACM 2488, 1, about 45.7 mm. (snout badly damaged), CR 126.

HOLOCENTRIDAE

Holocentrus ascensionis (Osbeck)

LACM 2513, 12, 48.7 to 87.4 mm., CR 126; LACM 2538, 16, 50.6 to 87.8 mm., CR 127.

Holocentrus vexillarius Poey

LACM 2514, 31, 33.6 to 88.9 mm., CR 126; LACM 2535, 22, 31.5 to 106.7 mm., CR 127.

Plectrypops retrospinis (Guichenot)

LACM 2570, 1, 35.6 mm., CR 127.

SERRANIDAE

Mycteroperca bonaci (Poey)

LACM 2565, 1, 22.2 mm., CR 127.

Rypticus saponaceus saponaceus (Bloch and Schneider)

LACM 2490, 2, 118.3 and 128.9 mm., CR 126; LACM 2563, 2, 74.7 and 82.6 mm., CR 127.

Rypticus subbifrenatus Gill

LACM 2478, 15, 27.5 to 53.8 mm., CR 126; LACM 2562, 8, 24.6 to 54.1 mm., CR 127.

Serranus flaviventris (Cuvier)

LACM 2552, 4, 30.0 to 39.4 mm., CR 127.

APOGONIDAE

Apogon maculatus (Poey)

LACM 2508, 7, 27.0 to 60.1 mm., CR 126; LACM 2572, 14, 27.1 to 62.7 mm., CR 127.

Apogon pigmentarius (Poey)

LACM 2556, 13, 26.4 to 45.4 mm., CR 127.

CARANGIDAE

Caranx latus Agassiz

LACM 2493, 1, 47.8 mm., CR 126.

LUTJANIDAE

Lutjanus apodus (Walbaum)

LACM 2472, 10, 20.0 to 28.2 mm., CR 126; LACM 2515, 2, 100.4 and 159.0 mm., CR 126; LACM 2571, 1, 20.6 mm., CR 127; LACM 2531, 8, 68.5 to 178.2 mm., CR 127.

Lutjanus synagris (Linnaeus)

LACM 2497, 1, 24.3 mm., CR 126; LACM 2542, 1, 134.9 mm., CR 127.

POMADASYIDAE

Haemulon macrostomum Günther

LACM 2504, 10, 30.0 to 93.4 mm., CR 126.

LEIOGNATHIDAE

Eucinostomus argenteus Baird and Girard

LACM 2485, 6, 17.0 to 31.2 mm., CR 126; LACM 2566, 1, 47.4 mm., CR 127.

Eucinostomus pseudogula Poey

LACM 2477, 1, 28.1 mm., CR 126.

CHAETODONTIDAE

Chaetodon capistratus Linnaeus

LACM 2498, 3, 20.4 to 27.6 mm., CR 126; LACM 2548, 2, 18.6 and 21.3 mm., CR 127.

Chaetodon ocellatus Bloch

LACM 2474, 1, 30.1 mm., CR 126; LACM 2554, 1, 65.8 mm., CR 127.

Chaetodon striatus Linnaeus

LACM 2494, 2, 21.5 and 23.7 mm., CR 126.

Pomacanthus paru (Bloch)

LACM 2473, 1, 40.4 mm., CR 126.

POMACENTRIDAE

Abudefduf saxatilis (Linnaeus)

LACM 2501, 5, 19.7 to 31.6 mm., CR 126; LACM 2546, 18, 11.9 to 36.1 mm., CR 127; LACM 2534, 19, 79.0 to 112.8 mm., CR 127.

Abudefduf taurus (Müller and Troschel)

LACM 2500, 9, 20.6 to 35.4 mm., CR 126; LACM 2520, 12, 80.8 to 137.5 mm., CR 126; LACM 2551, 1, 26.3 mm., CR 127; LACM 2533, 1, 132.7 mm., CR 127.

Eupomacentrus fuscus (Cuvier)

LACM 2522, 263, 15.1 to 68.6 mm., CR 126; LACM 2537, 105, 19.0 to 68.7 mm., CR 127.

Eupomacentrus leucostictus (Müller and Troschel)

LACM 2486, 12, 44.9 to 58.1 mm., CR 126; LACM 2543, 6, 47.8 to 63.8 mm., CR 127.

Eupomacentrus variabilis (Castelnau)

LACM 2484, 5, 28.2 to 42.5 mm., CR 126; LACM 2575, 7, 37.6 to 49.4 mm., CR 127.

LABRIDAE

Halichoeres bivittata (Bloch)

LACM 2479, 17, 32.4 to 85.8 mm., CR 126; LACM 2545, 5, 25.1 to 82.4 mm., CR 127.

Halichoeres kirschi (Jordan and Evermann)

LACM 2506, 40, 16.9 to 85.3 mm., CR 126; LACM 2544, 5, 17.1 to 50.3 mm., CR 127.

Thalassoma bifasciatum (Bloch)

LACM 2476, 1, 15.6 mm., CR 126; LACM 2569, 6, 26.9 to 58.4 mm., CR 127.

SCARIDAE

Scarus croicensis Bloch

LACM 2559, 8, 39.4 to 84.0 mm., CR 127.

Sparisoma rubripinnis (Valenciennes)

LACM 2502, 33, 12.9 to 52.9 mm., CR 126; LACM 2541, 30, 18.9 to 102.6 mm., CR 127.

ACANTHURIDAE

Acanthurus bahianus Castelnau

LACM 2489, 70, 26.0 to 47.8 mm., CR 126; LACM 2574, 18, 28.0 to 63.0 mm., CR 127.

Some of the smaller individuals were tentatively assigned to this species on the basis of general appearance in body form and color pattern. These specimens were not yet fully transformed, and still showed many larval characteristics of the acronurus, or pelagic, sea stage. On the basis of vertical fin-ray counts, the small specimens must either be assigned to this species or to *A. chirurgus*.

Acanthurus chirurgus (Bloch)

LACM 2507, 9, 33.0 to 45.5 mm., CR 126.

Acanthurus coeruleus Bloch and Schneider

LACM 2492, 1, 32.4 mm., CR 126; LACM 2547, 1, 31.1 mm., CR 127.

GOBIIDAE

Bathygobius soporator (Valenciennes)

LACM 2512, 36, 23.5 to 64.4 mm., CR 126; LACM 2553, 19, 21.8 to 63.8 mm., CR 127.

Coryphopterus dicrus Böhlke and Robins

LACM 2480, 9, 16.0 to 32.1 mm., CR 126; LACM 2549, 31, 15.3 to 31.0 mm., CR 127.

According to range data included by Böhlke and Robins (1960a: 114), in describing this species, the present specimens serve to extend the range of *C. dicrus* into the southwestern Caribbean from south Florida, the Bahamas, off Yucatan in the Gulf of Mexico, Puerto Rico and the Virgin Islands.

Coryphopterus glaucofraenum Gill

LACM 2550, 4, 28.4 to 37.6 mm., CR 127.

According to range data given by Böhlke and Robins (1960b: 110), this species has not previously been reported from the southwestern Caribbean. Caldwell and Caldwell (*In press*) also reported this species from this region, from Panama.

Gobionellus boleosoma (Jordan and Gilbert)

LACM 2567, 1, 23.7 mm., CR 127.

Lythrypnus nesiotus Böhlke and Robins

LACM 2560, 1, 13.9 mm., CR 127.

The pigmentation in alcohol of this specimen was much like that given by Böhlke and Robins (1960a: 83) in their original description of this species. However, the pigmentation differed from their description and illustration in that the membranes of the innermost ventral fin-rays had numerous small scattered melanophores. In addition, the soft dorsal and caudal fins had numerous spots (Fig. 1), many times larger than those of the

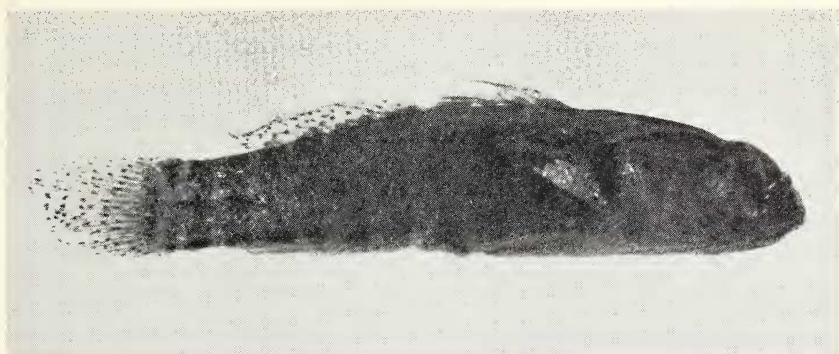


Fig. 1. *Lythrypnus nesiotes*, 13.9 mm., from near Puerto Limón, Caribbean Costa Rica.

anal fin and interspaced with small scattered melanophores, which tended to form irregular rows.

This specimen constitutes a significant range extension into the southwestern Caribbean from the Bahamas, Haiti, Puerto Rico and the Virgin Islands (*fide* Böhlke and Robins, 1960a: 84).

BLENNIIDAE

Entomacrodus textilis (Quoy and Gaimard)

LACM 2557, 10, 28.2 to 49.6 mm., CR 127.

Ophioblennius atlanticus macclurei Silvester

LACM 2483, 28, 35.1 to 46.1 mm., CR 126; LACM 2540, 85, 35.9 to 67.7 mm., CR 127.

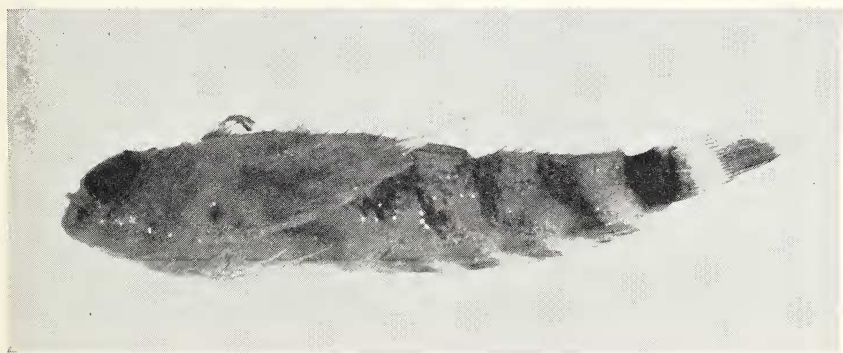


Fig. 2. *Enneanectes boehlkei*, 21.7 mm., from near Puerto Limón, Caribbean Costa Rica.

TRIPTERYGIIDAE

Enneanectes boehlkei Rosenblatt

LACM 2561, 2, 21.7 and 26.9 mm., CR 127.

While the background color of the larger of these specimens appeared to be close to that described and illustrated by Rosenblatt (1960: 7 and fig. 1), the background of the smaller example was much lighter, so that the lateral bars stood out sharply (Fig. 2). In other respects, these specimens satisfactorily fit Rosenblatt's original description of this species.

The specimens constitute a significant range extension into the southwestern Caribbean from Florida, the Bahamas, Puerto Rico and Martinique (*vide* Rosenblatt, 1960: 9).

CLINIDAE

Labrisomus nuchipinnis (Quoy and Gaimard)

LACM 2482, 28, 37.3 to 103.6 mm., CR 126; LACM 2568, 5, 66.0 to 110.9 mm., CR 127.

Paraclinus nigripinnis (Steindachner)

LACM 2505, 8, 8.9 to 38.0 mm., CR 126; LACM 2573, 1, 31.8 mm., CR 127.

BROTULIDAE

Ogilbia sp.

LACM 2499, 10, 37.5 to 46.8 mm., CR 126; LACM 2564, 16, 31.2 to 41.8 mm., CR 127.

OPHIDIIDAE

Parophidion schmidtii (Woods and Kanazawa)

LACM 2578, 3, 58.9 to 72.4 mm., CR 126.

The presence of this species in the southwestern Caribbean constitutes a significant range extension from Bermuda and the Bahamas (Böhlke and Robins, 1959: 51) and Jamaica (Robins and Böhlke, 1959: 9).

SPHYRAENIDAE

Sphyraena barracuda (Walbaum)

LACM 2558, 1, 63.9 mm., CR 127.

MUGILIDAE

Mugil curema Valenciennes

LACM 2511, 5, 31.2 to 40.4 mm., CR 126; LACM 2532, 6, 144.9 to 202.8 mm., CR 127.

ATHERINIDAE

Atherinomorus stipes (Müller and Troschel)

LACM 2509, 2, 53.9 and 59.3 mm., CR 126; LACM 2539, 106, 30.5 to 70.2 mm., CR 127.

SCORPAENIDAE

Scorpaena plumieri Bloch

LACM 2521, 9, 73.5 to 135.0 mm., CR 126; LACM 2536, 3, 61.1 to about 165 mm., CR 127.

BOTHIDAE

Bothus lunatus (Linnaeus)

LACM 2495, 1, 34.6 mm., CR 126.

CANTHIGASTERIDAE

Canthigaster rostratus (Bloch)

LACM 2555, 1, 17.6 mm., CR 127.

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